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EXAMINER

BARQADLE, YASIN M

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2153

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

MAILED

JUN 21 2007

Application Number: 09/888,544
Filing Date: June 25, 2001
Appellant(s): RUSSELL, LANCE W.

Technology Center 2100

Edouard Garcia
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed January 31, 2007
appealing from the Office action mailed July 11, 2006.

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REALY PARTY IN INTEREST

The statement identifying the real party in interest is contained in the brief.

Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

The statement of the status of claims contained in the brief is correct.

Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

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Evidence Relied Upon

- Vahalia et al US Pub. Number (20050251500), published November 10, 2005.
- Koyanagi et al US Pub. Number (20010013067), published August 9, 2001.
- Kato et al (U.S. 6,223,249), published April 24, 2001.

Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

- Claims 1-2,4-6, 12-13, 19, 23-24, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable Vahalia et al US Pub. Number (20050251500), hereinafter "Vahalia" in view of Koyanagi et al US Pub. Number (20010013067), hereinafter "Koyanagi".

Claims 21,22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable Vahalia et al US Pub. Number (20050251500), hereinafter "Vahalia" in view of Koyanagi et al US Pub. Number (20010013067), hereinafter "Koyanagi" and Kato (U.S. 6223,249).

Related Proceeding(s) Appendix

A statement of the related proceeding(s) Appendix is contained in the brief.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

As per claims 1-2, 4-6, 12-13, 19, 23-24, and 26-27, are rejected under 35 U.S.C. 103(a) as being unpatentable over Vahalia et al US Pub.

Number (20050251500), hereinafter "Vahalia" in view of Koyanagi et al US Pub. Number (20010013067), hereinafter "Koyanagi".

As per claims 1, 4, 12-13, 19, 23 and 26, Vahalia teaches a method and a machine-readable medium of accessing a data file in a distributed computing environment (fig. 4, ¶ 108 and abstract), comprising:

in response to a request from a client site for access to a data file stored in one or more physical storage systems at a source site, sending from the source site to the clients site physical address meta data including physical addresses of one or more logical blocks of the data file in the one or more physical storage systems (file server includes data movers and data storage with file systems in a cached disk array. In response to client request for a metadata, a metadata including pointers indicating where the data to be accessed is stored are

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returned to the client by the data movers ¶ 0056-0057), and routing meta data ("The invention provides a method of accessing a file in a data network. The data network includes a client and a server and data storage. The data storage including data storage locations for storing data of the file. The data network has an Internet Protocol (IP) data link between the client and the server. The data network also has a high-speed data link between the client and the data storage..."

(¶0015). (See also ¶ 0056-0057 and ¶ 81-89).

Although Vahalia shows substantial features of the claimed invention including IP data network between a client and a server for accessing data storage (0015-0017) and proxy router by forwarding NFS data packets from/to a client to/from a data mover that owned the file system (0048), he does not explicitly show a routing meta data comprising a next hop node along one or more network routes between the client site and the source site.

Nonetheless, this feature is well known in the art and would have been an obvious modification of the system disclosed by Vahalia, as evidenced by Koyanagi et al USPN. (20010013067).

In analogous art, Koyanagi whose invention is about a data transmission apparatus for transmitting data received from a user terminal device through a plurality of networks to a destination, the user terminal device executing communication using an Internet protocol. The data transmission apparatus includes a routing table storing information relating a destination address of the data and addresses of the plurality of networks, discloses a routing table

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storing information relating a destination address and addresses of the plurality of networks including next hop node (figs. 5B-C, fig. 6 and figs. 24 A-C and ¶ 0051). Giving the teaching of Koyanagi, a person of ordinary skill in the art would have readily recognized the desirability and the advantage of modifying Vahalia by employing the routing system of Koyanagi to determine the most appropriate path to transmit a in a plurality of networks, thereby enabling the selection of the most appropriate path. One ordinary skill in the art would be motivated to do so because the most appropriate network path leads to the transmission of data in a shorter time period Koyanagi paragraph 0085 and 0091).

As per claim 2 and 13, Vahalia teaches the invention, further comprising storing at the source site a data structure comprising the physical address meta data and the routing meta data for one or more logical file blocks of the requested data file (file server includes data movers and data storage with file systems in a cached disk array. In response to client request for a metadata, a metadata including pointers are returned to where the data to be accessed is stored are returned fig. 3 and ¶ 0056.)

As per claims 5, 24 and 27, Vahalia teaches the invention, wherein the routing meta data comprises complete path information from the client site to the source site for each of the one or more network routes (¶ 0079 and 0096).

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As per claim 6, Vahalia teaches the method of claim 1, where the metadata is sent to the client site in accordance with a routing network protocol (§0015-0017 and § 0056-0057).

Claims 21,22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vahalia et al (US Publication Number 20050251500, hereinafter "Vahalia") in view of Koyanagi et al and further in view of Kato USPN. (6223249).

As per claims 21,22, and 25, although Vahalia and Koyanagi show substantial features of the claimed invention including "a secondary data mover to access data of a file over a data path that bypasses the Owner, the secondary data mover must obtain metadata of the file in addition to a distributed lock over the file. In the preferred implementation, the metadata is exchanged between an Owner and a secondary data mover as part of the data-mover level distributed file locking protocol. The metadata includes the disk block numbers of the file. The disk block numbers are pointers to the disk storage locations where the file data resides" (§ 0160), they do not explicitly show physical address parameters including disk number and sector number.

Nonetheless, this feature is well known in the art and would have been an obvious modification of the system disclosed by Vahalia and Koyanagi as evidenced by Kato et al USPN. (6223249).

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In analogous art, Kato whose invention is about a method for controlling access to one or more disc storage devices, discloses physical address parameters including disk number and sector number (figs 10A-B). Giving the teaching of Kato, a person of ordinary skill in the art would have readily recognized the desirability and the advantage of modifying Vahalia and Koyanagi by employing the system of Kato so as to control access to a plurality of discs storing a plurality data and to determine which discs will store each of a plurality of the sub-blocks and information comprising addresses of the sub-blocks stored on the discs and size of each of a plurality of the sub-blocks in such a manner that the overhead at the time of accessing data on a disc device can be reduced.

Response to Arguments

The appellant's arguments raised in the Appeal Brief have been considered but are not deemed persuasive.

In essence the Appellant argues

A - Vahalia in view of Koyanagi do not teach or suggest "a method of accessing a data file that includes, sending from a source site to a client site routing meta data comprising one or more node addresses more network routes between the client site and the source site in response to a request from the client site for access to a data file stored in one or more physical storage systems at the source site." (Page 6, first paragraph).

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B-"On its face, ¶ 15 does not disclose 'in response to a request from a client site for access to a data file stored in one or more physical storage systems at a source site, sending from the source site to the client site ... routing recta,' as recited in claim 1. In particular, the metadata that is sent to the client by the server only corresponds to the physical addresses of the logical blocks of the requested data file; this metadata does not include any routing data whatsoever,... as recited in claim 1." (Page 10, second paragraph and page 15 last paragraph).

C - Appellant argues "It was well-known in the art of network communications at the time the invention was made that physical addresses conventionally are not used when transmitting frames over point-to-point communication links because there is only one possible destination for each transmission. In addition, host addresses conventionally are not assigned to the nodes of a point-to-point communications link. Although IP routing tables may use arbitrary values as next-hop addresses for the nodes of a point-to-point communications link, such values are ignored by both IP and the point-to-point hardware interfaces of these nodes. Vahalia does not teach or suggest anything that contradicts this well-known information about point-to-point communications links. (Page 9, second paragraph).

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D - "The Examiner has not shown that when combined the cited references teach or suggest all the claim limitations; and The Examiner has not pointed to any suggestion or motivation, either in the cited references themselves or in the knowledge generally available, that would have led one skilled in the art to modify the references or to combine reference teachings." (Page 11, first paragraph).

E- "In summary, the Examiner has not pointed to any suggestion or motivation, either in the cited references themselves or in the knowledge generally available, that would have led one skilled in the art to modify the references or to combine reference teachings as required in order to establish a prima-facie case of obviousness under 35 U.S.C. § 103 (see, e.g., MPEP § 706.020(j))." (Page 14, first paragraph. See also page 15 and page 16).

In response to arguments A and B, the Examiner notes that figures 3, 4 and 5 of Vahalia sums up the argued limitations. For example, Vahalia teaches client 88, fig. 4 making metadata request to data mover 81 (see dotted lines) for a data file stored in one or more physical storage systems (storage system 84 or 83) at a source site, sending from the data mover 81 or (from data mover 82 via data mover 81) a metadata (see the dotted lines 82 to 81 and 81 to client 88 (the metadata including information specifying the data storage locations (¶ 0015-0016)) to the requesting client 88 (¶ 0062 and ¶ 0066, fig. 4. see also steps 101, 102 and 103 in fig 5

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and (§ 0070-0073). "In the more general case, as described above with reference to FIG. 5, the file access request could be forwarded through one or more additional data movers along a path between the Forwarder and the Owner,..." (§ 0070). Therefore, it is clear that the metadata includes information about where the data is located and how to get there. Vahalia silently provides the routing information of a data "the file access request could be forwarded through one or more additional data movers along a path between the Forwarder and the Owner,..." (§ 0070) stored in a remote geographical region linked by an IP data link connection (§ 0057). See also § 0070-0072 where Vahalia discloses forwarding data access requests between clients and servers and between a servers to another server using CIFS an Internet protocol based file system. From the above description, the information the is included in the metadata, if it not inherently includes a routing information to where the data is stored, it is clearly obvious to one ordinary skill in the art at the time of the invention to also tell the requesting client the remotely geographic location physical address of where the data to be accessed is stored. In this way the client would access specified storage directly or Via Forwarders (secondary data movers) using the well know routable TCP/IP protocol (§ 0070-0072). It does not make sense telling the client where the physical address of the logical blocks of the requested data file is located without including the routing information of the server the data is stored (the IP address of the

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file server where the blocks of data are stored). A broad but reasonable analogy of the argued limitation in claim 1 is like telling a person (requesting client) the location of an item in a particular physical location (metadata) in a bedroom located in a remote geographic region (storage disks) without giving the specific physical house address where the bedroom is located (the physical address of the storage disks).

It is here where Koyanagi's reference becomes applicable. Examiner notes in the obvious scenario, Koyanagi whose invention is about a data transmission apparatus for transmitting data received from a user terminal device through a plurality of networks to a destination, ...The data transmission apparatus includes a routing table storing information relating a destination address of the data and addresses of the plurality of networks, discloses a routing table storing information relating a destination address including next hop node (figs. 5B, fig. 6 and figs.24A-C). Koyanagi and Vahalia are both concerned submitting data packet and reaching a destination location using the appropriate path. Koyanagi teach the most appropriate route to get a destination (abstract) while Vahalia avoids overloaded network connection and delays (paragraph 0011 and 0071). Hence, the combined teaching of Vahalia and Koyanagi teach the argued limitation of the Appellant.

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Regarding C of Appellant's argument. Examiner respectfully disagrees with Appellant's assessment of Vahalia's high-speed data link for the following reasons.

A- Appellant admits the existence of IP routing table that may use arbitrary value as a next hop addresses for the nodes of a point-to-point communication link (see above quote). The fact that an IP routing table may be used, it implies using IP (physical) address in a routable network where communicating hosts have assigned IP addresses.

B- Appellant also admits in page 10, first line that "Vahalia discloses client connected to server by an IP data link..." This is an indication that a well known routable addresses such as IP is used by Vahalia's system to connect between clients and servers. Vahalia uses a connection oriented Common Internet File system (CIFS) protocol for his high-speed links (paragraph 13 and paragraphs 71-72).

C- Finally, Vahalia's "data movers 81, 82 and the cached disk arrays 85, 86 could be spaced from each other, placed at various geographic locations, and interconnected by high-speed Fibre Channel data links" (paragraph 0057). Because Vahalia uses TCP/IP "For example, the CIFS file system protocol is based on the connection-oriented Transmission Control Protocol (TCP/IP)." paragraphs 71-72) and because clients and servers communicate through an IP data link over different geographic

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locations, the network must use physical address (IP addresses) as taught by Vahalia and data must be routed between the various geographical locations.

E - Finally, Appellant refers to (¶ 11) of Vahalia's "high-speed data link" as a point-to-point data link between the data movers 21, 22 (see at end of paragraph 2, page 9). Examiner notes nowhere in Vahalia the phrase point-to-point is mentioned. Vahalia mentions data can be accessed (read/write) directly (¶ 11 and ¶ 22) or through more than one data movers using a connection oriented protocol such Common Internet File System (CIFS) (¶ 48 and ¶ 13).

Regarding Appellant's arguments in D and E above:

In response to applicant's argument that (the Examiner has not pointed to any suggestion or motivation, either in the cited references themselves or in the knowledge generally available,...) the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Furthermore, the examiner recognizes that obviousness can only be established by combining or modifying the

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teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Koyanagi and Vahalia are both concerned submitting data packet and accessing a destination address location. Koyanagi teaches selecting the most appropriate route to a destination address (abstract) while Vahalia avoids overloaded network connection and delays found in a plurality of networks (paragraph 0011 and 0071). Hence, the combining the teaching of Vahalia with that of Koyanagi will result a method for selecting an appropriate network path that enables the data transmission through the appropriate network with the less overload and network delay (see Koyanagi Abstract and paragraphs 0091 and 102).

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

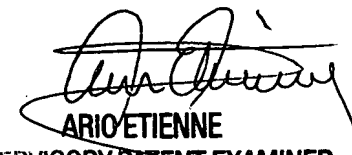
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